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2000

EPA Superfund
Explanation of Significant Differences:

MW MANUFACTURING
EPA ID: PAD980691372
OU 01
VALLEY TOWNSHIP, PA
09/27/2000

EXPLANATION OF SIGNIFICANT DIFFERENCES

MW MANUFACTURING – OU3

VALLEY TOWNSHIP, PA

1.0 INTRODUCTION

SITE NAME:	MW Manufacturing Superfund Site
SITE LOCATION:	Valley Township, Montour County, Pennsylvania
LEAD AGENCY:	U.S. Environmental Protection Agency, Region III ("EPA" or the "Agency")
SUPPORT AGENCY:	Pennsylvania Department of Environmental Protection (PADEP)

1.1 Statement of Purpose

This explanation of Significant Difference ("ESD") is issued in accordance with Section 117 (c) of the Comprehensive Environmental Response, Compensation and Liability Act, as amended ("CERCLA"), and is now a part of the Administrative Record for the MW Manufacturing Superfund Site ("Site"). This document explains significant differences to the remedy selected in the Record of Decision ("ROD") for the Site signed by the Regional Administrator on June 30, 1992. This ESD makes changes to the ROD previously issued which is attached as Exhibit 1. In effect this ESD changes groundwater cleanup levels and requires the use of an overburden groundwater extraction system along with intermittent pumping from bedrock wells. The remedial changes proposed in this ESD will achieve mass removal of groundwater contamination from the area of highest impact; namely overburden groundwater.

1.2 SUMMARY OF THE SITE HISTORY, SITE CONDITIONS, AND SELECTED REMEDY.

The MW Manufacturing Superfund Site (Site), located in Valley Township, Montour

County, Pennsylvania, occupies approximately 15 acres of land along Washingtonville Road. The Site is bordered on the north by a Pennsylvania Department of Transportation (PADOT) storage facility, on the west and south by agricultural and wooded properties, and on the east by Washingtonville Road and a wetland area. Mauses Creek is east of the Site between Washingtonville Road and State Road 54.

MW Manufacturing engaged in secondary copper recovery from scrap wire, using both mechanical and chemical processes, until it ceased operations. In 1972, MW Manufacturing filed for protection under Chapter 11 of the United States Bankruptcy Code, and the Philadelphia National Bank acquired the property. The Site is currently inactive, in part due to legal actions by the Pennsylvania Department of Environmental Protection (PADEP) (formerly known as the Pennsylvania Department of Environmental Resources). PADEP records indicate that Mr. Allan Levin of Doylestown, Pennsylvania, proprietor of MW Manufacturing Corporation, owned the property from about 1966 to 1972.

The chemical recovery process employed the use of a hot bath to melt the polyvinyl chloride (PVC) plastic insulation away from the the scrap copper wire. The high temperatures decomposed the plastic insulation into carbon, which separated out as a granular black material, and also enhanced the dissolution of lead from the plastic insulation and copper from the metal wire. Chlorinated solvents such as tetrachloroethene (PCE) were then used to remove the residual oil from the separated copper. The inorganic and organic compounds associated with this process have been identified throughout the Site.

The mechanical recovery process consisted of the shredding of wire and the generation of "Fluff" waste. The Fluff waste consists of fibrous insulation material mixed with bits of plastic and copper. Phthalate esters, copper, lead and chlorinated solvents are all present in the Fluff.

Warehouse 81 Inc. acquired the Site in 1976. Subsequently, Warehouse 81 Inc. and Domino Salvage, Inc. formed a limited partnership to recover wire at the Site. Records indicate that the only activities conducted by the Warehouse 81/Domino Salvage partnership were mechanical recovery operations.

The main facility at the Site consists of a single, large empty building which occupies approximately one acre of property. Most of this building is collapsed and will be fully demolished and removed by the site owner. In addition, there is a smaller building which occupies approximately 3,350 square feet to the south of the main building. The remainder of the Site consists of open land, piles of Fluff and a small surface water impoundment. Currently the Site is fenced, and access to the Site is restricted.

Investigations of environmental conditions at the Site began in the early 1980s. In 1981-1982, PADEP inspected the Site, installed four monitoring wells, and collected groundwater samples. In late 1982, Warehouse 81 retained Dunn Geoscience Corporation (Dunn) to evaluate conditions at the Site. Dunn installed seven additional groundwater

monitoring wells. Together with the four PADEP wells, the groundwater monitoring network consisted of a total of 11 wells. In addition, Dunn conducted a pumping test and collected soil and groundwater samples.

The Site was proposed for the National Priorities List (NPL) on October 1, 1984 and was placed on the NPL on June 10, 1986. In February 1987, a Removal Consent Order was signed by the EPA and the current owners of the Site, Michael G. Sabia and Michael G. Sabia, Jr., doing business as Warehouse 81 Limited Partnership, were directed to supply water to the person living on-Site and to keep records of the water supply for 5 years.

A Potentially Responsible Party (PRP) search was conducted for the Site. As a result of this search, EPA determined that the previous owners and operators of the Site had gone out of business. EPA notified current owners of the Site, Michael G. Sabia and Michael G. Sabia, Jr., doing business as Warehouse 81 Limited Partnership, of their potential liability at the Site and offered them the opportunity to conduct the Remedial Investigation/Feasibility Study (RI/FS), but they elected, not to participate. EPA conducted the RI/FS beginning in August 1988. Following the completion of the RI/FS, EPA divided response actions at the Site into six Operable Units (OUs). OU-1 addresses the carbon waste that has been left on-site from the copper recovery process. In March 1989, EPA issued a ROD which selected off site incineration for the carbon waste as the remedy for OU-1. A Special Notice Letter to conduct the Remedial Design and Remedial Action (RD/RA) for OU-1 was sent to Warehouse 81 on March 6, 1989. Again, Warehouse 81 declined to participate. The excavation and off-site incineration of the carbon waste were completed by EPA in March 1992.

Additional PRP investigations in 1992 discovered records that led to the identification of AT&T Nassau Metals (Nassau) and Pennsylvania Power and Light (PP&L) as additional PRPs. A general notice letter regarding their Potential liability for the Site was sent to Nassua and PP&L on May 19, 1992.

EPA issued the ROD for OU-2 in June 1990, this ROD addressed the Fluff, impacted soils and impacted lagoon water at the Site. In December 1992, Nassau petitioned EPA to reopen the OU-2 ROD. EPA reopened the public comment period and Nassau submitted comments to supplement their petition to reopen the ROD in October 1993. In March, 1994 EPA agreed to consider alternatives proposed by Nassua provided that Nassua conducted a treatability study and a Focus Feasibility Study (FFS) to reevaluate the remedial alternatives. Between 1993-1995, Nassau undertook a series of studies to evaluate an alternate remedy for the Site. During this period EPA continued to pursue the Remedial Design (RD) of the OU-2 remedy. During the RD for OU-2 a series of treatability studies involving incineration of Fluff and contaminated soils were conducted. The treatability studies which were completed in November 1995, revealed that the selected remedy for OU-2 had the potential for adverse impacts on human health and environment. Ultimately, EPA abandoned the OU-2 Remedy involving incineration and instead selected the OU-5 remedy involving stabilization and solidification of Fluff and contaminated soils, a remediation technology similar to that proposed by Nassau. Thus, OU-5 remedy addresses the Site contaminants previously addressed under OU-2.

On June 30, 1992, EPA issued the ROD for OU-3 which addresses groundwater contamination. By letter dated September 30, 1992, EPA sent a Special Notices to Nassau, PP&L and Warehouse 81 and its general partner, Michael G. Sabia, Sr. which informed those PRPs that the EPA was willing to enter into a federal consent decree with them to conduct the RD/RA contemplated by the OU-3 ROD. Nassau and PP&L responded, but failed to make an acceptable good faith offer to the Agency in regard to OU-3. Warehouse 81 and Michael G. Sabia, Sr. did not respond to the Special Notice letter. On March 31, 1993, a Unilateral Administrative Order was issued to the each PRP to conduct the RD/RA for OU-3. Nassua and PP&L agreed to conduct the RD/RA for OU-3. During the design phase, EPA decided to split OU-3 in to two operable units: OU-3 and OU-4. OU-3 addresses the long-term groundwater cleanup, and OU-4 provides public water to potentially affected residences and businesses. The construction of a public water supply was completed in August 1996.

The OU-6 addresses the main building which it has structurally become unsafe, creating potential for release of the Fluff from the Fluff piles.

Thus, the Site has been divided into the following six operable units.

OU-1: Carbon waste pile
OU-2: Fluff waste and Site soils (OU-2 was replaced by OU-5 in 1995)
OU-3: Groundwater Cleanup
OU-4: Public water supply
OU-5: Fluff waste (previously addressed under OU-2), storage tanks, lagoon water and sediments, and Site soils (also previously addressed under OU-2).
OU-6: Building demolishing and debris removal.

OU-1, the removal of the carbon pile, was completed in 1992. OU-4, construction of a 17,400 foot public water distribution system throughout Valley Township was completed in 1996, providing water to 39 residences and 13 commercial establishments. The public water supply is operating as designed providing safe drinking water to the affected residences and commercial establishments. The Operation and Maintenance ("O&M) of the public water system has been taken over by the Valley Township Water Authority, and it is being operated in compliance with the Commonwealth of Pennsylvania drinking water standards.

From 1996 to 1998, a series of Pre-Design Investigation activities were conducted for OU-3 by Nassau. The principal objectives of the Pre-Design Investigation activities were to: (1) acquire additional groundwater quality and water level data at the Site and from the surrounding areas to fill data gaps regarding the extent of groundwater impacts and the direction of groundwater flow; (2) further assess the hydrogeologic setting which influences groundwater conditions at, and adjacent to, the Site; and (3) evaluate the anticipated groundwater treatment efficiencies through bench-scale treatability studies.

Pre-Design Investigation activities included:

1) installation of additional on-site and off-site groundwater monitoring wells;
2) measurement of discrete and continuous water levels;
3) groundwater sampling for evaluation of VOCs (Shallow Groundwater Grab Sampling Plan);
4) Geoprobe® investigation;
5) evaluation of product recovery from bedrock wells Dunn-3 and Dunn-4;
6) overburden extraction well installation;
7) overburden aquifer test;
8) groundwater sampling and analysis in support of natural attenuation;
9) surface water and sediment sampling in Mauses Creek;
10) human health risk assessment for surface water in Mauses Creek;
11) groundwater modeling; and
12) confirmatory treatability testing.

Based on the conclusions summarized in the Pre-Design Investigation, a conceptual model of the Site conditions was developed. This Conceptual Site Model indicated the following:

1. The primary environmental impacts at the Site result from VOCs present within groundwater in the overburden and bedrock beneath, and east of, the site;
2. The highest degree of contamination is found in the overburden;
3. Site groundwater eventually discharges to the wetlands and Mauses Creek east of the site;
4. The hydrogeologic setting effectively contains the impacted groundwater to a defined area. The contamination of impacted groundwater is a function of topographic features, the orientation of the bedrock strike, steeply dipping beds, and hydraulic gradients (including upward vertical flow within the bedrock and the discharge of groundwater to the wetlands and creek system);
5. Migration of contamination has been further reduced by the installation of a public water supply in 1996 which effectively eliminated known groundwater withdrawal in the vicinity of the plume; and
6. Concentrations of VOCs in groundwater are expected to slowly decrease in future years as a function of overburden groundwater remediation in conjunction with natural attenuation, including degradation within the aquifer, and dilution and volatilization in the surface water environment.

The results of these activities are presented in the Pre-Design Report dated November 1995 and the Supplemental Pre-Design Investigation Report (SPDIR) dated April 2000.

The aforementioned OU-3 investigations, in conjunction with other investigations addressing other operable units, have provided substantial information regarding environmental conditions at the Site. In summary, soil and groundwater at the Site have been impacted as follows: the presence of approximately 32,000 cubic yards (CY) of Fluff waste which contains VOCs (mainly chlorinated solvents), semi-volatile compounds (inert plasticizer compounds), and metals (mainly copper and lead); the former presence of approximately 1,700 CY of carbon waste which contained significant concentrations of

chlorinated solvents (particularly TCE/PCE) and PCBs; the presence of above and underground storage tanks which contained chlorinated solvent product and petroleum products (gasoline, oil); and the haphazard storage and disposal of drummed material (mainly carbon waste and Fluff waste) throughout the rear of the Site. The presence of Non Aqueous Phase Liquid (NAPL) at the Site in soil and groundwater has been established. Based on the findings of the investigations, it is estimated that approximately 10,000 CY of soil containing NAPL will be addressed utilizing low temperature thermal desorption (LTTD) as part of OU-5.

2.0 EPA's Selected Remedy

EPA's ROD for OU-3 was issued in June 1992. The ROD addressed Site groundwater and adjacent wetland areas.

The major components of the OU-3 remedy described in the 1992 ROD are as follows:

1. Provide a connection from the Danville public water supply system to the community of Mausdale;
2. Extraction of impacted groundwater from the plume at the Site;
3. Treatment of the impacted water in a chemical precipitation unit to remove inorganic contaminants;
4. Removal of organic contaminants from the groundwater by air stripping followed by destruction of organic contaminants from the air stream by thermal destruction;
5. Removal of remaining organic contaminants using carbon adsorption and discharging the treated water to Mausdale Creek, or/and the Susquehanna River.

Component 1, the construction of a public water supply system was completed under OU-4, as described previously. This ESD is issued to explain significant changes to component 2. All other components of the remedy remain same.

3.0 BASIS FOR ESD

3.1 Information Supporting ESD

Several components of the Pre-Design Investigation contributed to a better understanding of the Site conditions, which highlighted a need for a modification of the selected remedy. Most importantly, a Geoprobe investigation of the saturated overburden defined a huge concentration of residual an/or pooled Dense Non Aqueous Phase Liquid (DNAPL). The DNAPL areas act as an ongoing source of groundwater VOC plume generation as the dissolution of NAPL from saturated and unsaturated, soils occurs. The groundwater gradient study conducted supported that the naturally occurring groundwater flow system contains the dissolved VOC plume to the area bounded by Mauses Creek.

The Shallow Groundwater Grab Sampling Program conducted at the Site indicates that overburden groundwater is more adversely impacted with respect to chlorinated VOCs than

was previously known. The chemical composition of the product varies from types of Light Non Aqueous Phase Liquid (LNAPL) and DNAPL to a combination of both. Concentrations of dissolved chemicals are several orders of magnitude higher near the source areas than within the periphery of the overburden VOC plume.

Sufficient residual product is present in these saturated overburden source areas to act, through the process of gradual dissolution, as a long-term and continuing source of VOCs to the overburden groundwater beneath the Site. Physical and chemical properties of non-aqueous phase chlorinated solvents as found on-site tend to cause residual product to persist in the subsurface for long periods of time, with no long-term reduction in concentration, even when traditional downgradient groundwater extraction systems are installed and operated. The high densities of chlorinated solvents relative to water and the low absolute solubilities allow chlorinated solvents to penetrate the water table and potentially pool on top of less permeable layers at depth in the saturated overburden. The solubilities in water are high for chlorinated solvents, meaning that small amounts of residual product at a Site can cause persistently high levels of groundwater impacts.

The Pre-Design Investigation compared: 1) groundwater extraction from the overburden via wells and an interceptor trench; with 2) pumping from the intermediate and deeper bedrock. Overburden aquifer testing conducted during pre-design activities indicates that the overburden extraction well scheme would be difficult and inefficient due to the low hydraulic conductivity of the overburden as compared to the intermediate bedrock.

Groundwater modeling indicates that long-term pumping of the bedrock aquifer as envisioned in OU-3 remedy would result in the de-watering of the wetland area adjacent to Mauses Creek and would adversely impact the flow within the creek, especially during low flow conditions. In addition, long-term pumping of the bedrock aquifer could cause the downward migration of DNAPL, potentially compounding the extent of current groundwater impacts at the Site.

Based upon results from all the various model simulations that were run, the on-site interceptor trench scenario appears to produce the most effective hydraulic control and mass removal of dissolved VOCs from overburden groundwater within the Site. This scenario resulted in a capture zone that extended approximately 600 feet downgradient of the trench. The groundwater flow rate between the downgradient extent of this capture zone and Mauses Creek was reduced, allowing more time for natural attenuation effects to occur. In addition, this scenario also appears to result in the collection of impacted groundwater ater from shallow bedrock underlying the trench. Furthermore, model simulation of the on-site trench scenario in concert with limited bedrock pumping from the two highly impacted Dunn wells (i.e. Dunn-3 and Dunn-4), indicated improved contaminant mass removal benefits without adversely impacting hydraulic conditions in Mauses Creek and the adjacent wetlands. Additional analyses should be conducted as part of remedial design activities to more closely examine specific on-site interceptor trench alternatives, including optimazing the trench configuration that will best achieve the program objectives.

References providing detailed information regarding the aforementioned pre-design activities are provided below:

1. Pre-Design Investigation Report (November 1995) prepared by S. S. Papadopulas & Associates;
2. Remedial Design Work Plan Addendum (August 1996) prepared by McLaren/Hart;
3. Remedial Design Work Plan Addendum – Supplement 1 (October 1996) prepared by McLaren/Hart;
4. Remedial Design Work Plan Addendum – Supplement 2 (March 1997) prepared by McLaren/Hart;
5. Draft Supplemental Pre-Design Investigation Report (March 1999) prepared by McLaren/Hart; and
6. Draft Supplemental Pre-Design Investigation Report – Addendum 1 (April 2000) prepared by McLaren/Hart.
7. Supplemental Pre-Design Investigation Report –Addendum 1 and 2 (July 2000)

This technical information is available in the Administrative Record file.

4.0 DESCRIPTION OF SIGNIFICANT DIFFERENCES

4.1 Conceptual Groundwater Extraction System

The ROD includes a brief conceptual design for the groundwater extraction system based on information obtained during the RI, and assumptions made during development of the ROD concerning the extent of impacted groundwater. The conceptual design presented in the ROD includes the installation of bedrock extraction wells along the perimeter and the interior of the VOC plume and contemplates pumping at a rate sufficient to extend the capture zone beyond the plume boundaries in all directions (800 gpm). This traditional design accomplishes two objectives: 1) to provide hydraulic containment of a plume, and 2) to remove dissolved chemicals from the groundwater. At many Sites, this approach succeeds in providing hydraulic containment of dissolved plumes.

In addition, the ROD calls for groundwater cleanup to the background levels. However, as acknowledged in the ROD issued in June 1992, DNAPL in the subsurface acts as a persistent source of groundwater impacts, preventing reduction of long-term dissolved VOC concentrations in groundwater. The common futility of groundwater extraction for restoration of DNAPL sites has been well established now and is a consideration at the Site. Also, the Commonwealth of Pennsylvania no longer requires cleanup of contaminated groundwater to the background levels. Therefore, EPA is changing groundwater cleanup levels from background to Maximum Contaminant Levels (MCL) given in EPA drinking water standard or Medium Specific Concentration (MSC) given in ACT 2 under the Land Recycling Program of PADEP, whichever is more stringent.

Evaluation of conditions observed at the Site and the analysis of further data as part of the Pre-Design Investigation indicates that a modification of the ROD's conceptual design of the groundwater extraction system is appropriate and warranted. The natural groundwater flow conditions at the Site achieve the first objective described above, namely providing lateral and vertical hydraulic containment of the dissolved plume. This is based on groundwater surface elevation measurements, and is confirmed by groundwater analytical data from monitoring and residential well sampling.

With regard to the second objective removal of dissolved contaminants, the modified conceptual remedial design presented herein maximizes the efficiency of chemical removal from the overburden groundwater by capturing overburden groundwater emanating from areas present on the Site demonstrating the highest concentrations of organic compounds. The difference in the overburden groundwater extraction system is the use of an overburden interceptor trench rather than the installation of bedrock extraction wells along the perimeter and interior of the VOC plume. The interceptor trench would be used to capture highly impacted overburden groundwater before it travels off-site and reaches Mauses Creek. In addition, limited pumping of the bedrock using Dunn wells will be beneficial to the mass removal of contaminants.

If it is determined during operation of the proposed system that additional benefit could be achieved by alternate or additional overburden or bedrock groundwater recovery, additional recovery wells or trenches will be constructed as appropriate.

This overburden extraction system is not intended to intercept the downgradient portion of the plume in the bedrock, nor to capture all potentially impacted groundwater.

The groundwater model indicated that the interceptor trench recovered 25 gpm of overburden groundwater. The final design of the recovery trench, including its location on the Site; length; depth; etc., will be determined during the remedial design phase of the project. A more refined groundwater model will be developed as part of the preliminary design to determine the optimum trench design to achieve the desired objectives. The expected volume of groundwater to be captured by the interceptor trench will be used to design the overburden groundwater treatment system. The expected flow to the overburden treatment system will be significantly lower than 800 gpm of total flow proposed in the original June 1992 ROD.

The ROD requires that treated groundwater from the Site will be discharged to either the Susquehanna River or Mauses Creek. The Susquehanna River was considered a viable discharge option due to the proposed discharge rates presented in the ROD of 800 gpm. However, based on the anticipated significantly lower flow from the overburden interceptor trench as well as the distance to the Susquehanna River, discharging to the Susquehanna River is not a viable or beneficial alternative for the overburden remediation.

During the design, scenario for discharging treated groundwater in the wetland area adjacent to Mauses Creek will be evaluated to minimize potential impacts to wetlands due to groundwater withdrawal using the collection trench. If it is determined to be feasible and beneficial, the collected groundwater after the treatment will be discharged to the wetland.

If it is determined to be not feasible or beneficial, the treated groundwater will be discharged directly to Mauses Creek.

4.2 Comparison of Rod to Proposed Revisions

A side-by-side comparison of the ROD and the significant differences is provided as Table 1. Table 1 highlights the new information obtained as a result of the pre-design activities which formed the basis for evaluating an alternative remedial approach.

ROD Component	New Information	Ramification	Difference
Extraction System	Geoprobe® Investigation	Extent & magnitude of free product and DNAPL in soil/GW much greater than previously known	Interceptor trench vs. well system would collect highly impacted GW more efficiently
Extraction System	GW Sampling for VOCs	Extent & magnitude of free product and DNAPL in GW much greater than previously known	Interceptor trench vs. well system would collect highly impacted GW more efficiently
Extraction System	Overburden Aquifer Test	Revealed constraint of extracting limited volume of GW (<1 gpm) in overburden. Well extraction system would require numerous wells/ high maintenance	Interceptor trench vs. well system would collect highly impacted GW more efficiently
Extraction System	Natural Attenuation Evaluation	Capacity for natural attenuation beyond site boundary would contribute to mitigating need for active extraction in wetlands	Interceptor trench vs. well system would collect highly impacted GW more efficiently
Extraction System	Modeling	ROD scenario modeled and shown to have dewatered wetlands	Interceptor trench vs. well system would not dewater wetlands and more efficiently collect highly impacted GW

5.0 SUPPORT AGENCY COMMENTS

PADEP concurs with EPA's proposed modification of the remedy given in the June 30,

1992 ROD to the remedial approach outlined in this ESD.

6.0 STATUTORY DETERMINATIONS

The modified remedy proposed within this ESD complies with the NCP and the statutory requirements of CERCLA. The ROD remains protective and continues to meet ARARs.

The modification of the remedy proposed within the ESD acknowledges the existence of highly impacted groundwater caused by the presence of DNAPL.

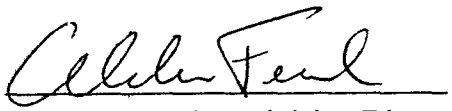
The new information obtained during the pre-design investigations mitigated the need to construct an extraction system utilizing recovery wells. Specifically, the pre-design investigations revealed that the presence and magnitude of DNAPL in several areas required a modification of the Conceptual Site Model and, consequently, the remedial approach. A remedial approach using an interceptor trench in conjunction with intermittent bedrock wells pumping to collect highly impacted groundwater is an efficient way of removing the bulk of contaminant and will be protective in conjunction with provision of public water supply.

7.0 PUBLIC PARTICIPATION

This ESD and the information upon which it is bases have been included in the Administrative Record file for this Site. The Administrative Record also includes the ROD for this OU and all documents that formed the basis for EPA's selection of the remedy. The Administrative Record is available for public review at the locations listed below:

U.S. EPA, Region III
1650 Arch Street
Philadelphia, PA 19103
Hours: Mon.-Fri., 9 a.m. to 4 p.m.

Thomas Braver Free Library
25 East Market Street
Danville, Pennsylvania
Hours Monday 1p.m. to 9 p.m.
Hours Tue. & Sat., 10 a.m. to 5 p.m.
Hours Thur. & Fri., 7 p.m. to 9 p.m.



Abraham Ferdas, Division Director
Hazardous Site Cleanup Division

9/27/00
Date